SCIENCE & EDUCATION
Impact
Benefits from USDA/Land-Grant Partnership

Hooked on Science

Agricultural and life sciences education prepares young people for careers in science and technology.

According to the University of Nevada, fewer than half of all U.S. science teachers have a major or minor in science, and 18 percent of science teachers lack certification in their field. Land-Grant Universities and the USDA are doing their part to remedy this situation. They provide teachers with interactive, unbiased curricula and update them on the latest scientific knowledge through summer seminars and classes. They excite school kids about science through summer camps and after-school activities. And they prepare college students to enter science fields or to become science teachers by providing high-tech facilities, innovative classes and real-world experiences.

Payoff

- **University genies.** More than 120 students have participated in **Wisconsin's** graduate biotechnology training program and have completed internships or found employment with 40 companies worldwide. Some students have made discoveries leading to patents. Other participants have started or served as lead researchers for startup biotech companies, including NibleGen, GeneSys and Stratatech.

- **Healthy dose of dietitians.** To keep up with demand for registered dietitians, many universities have established innovative educational programs. **Hawaii** has seen a 300 percent increase in the number of students in its program, all whom have found jobs; 98 percent pass the registration exam, compared with 89 percent nationally. Compared to the national average of 54 percent, more than 90 percent of students are accepted into dietetic internship programs. **Delaware State** and **Arizona** have seen similar results in their programs.

RESEARCH, EXTENSION AND EDUCATION AT WORK

- **Resources for science courses.** Through its Entomology for Educators course, **North Carolina State** gives teachers ideas and resources for using insects as a teaching tool. One middle school student won first place in a science project competition for her project on green stink bugs – an idea inspired by one of the course's participants. About 5 million K-12 and university students and teachers nationwide use **Wisconsin's** Fast Plants program. The program uses a small mustard plant, which completes its life cycle in 40 days, to study plant growth, repro-

duction, physiology and ecology. One Maine middle school teacher said the program is "the best thing that has happened to the teaching of the plant kingdom since the beginning of organized education."

- **From tree climbers to foresters.** Surveys show that the enrollment of minority students in U.S. university forestry programs is 16 percent. To get minority youth excited about environmental careers, **South Carolina State** sponsored a week-long natural resources career camp for high school freshmen and sophomores. A pretest noted that the youth knew very little about forestry. After the camp nearly 95 percent knew the purpose of a watershed and could identify at least three careers in forestry.

- **It's elementary - science teachers needed. Nevada** created its Science Partners course to promote K-6 teaching as a valued and respected career for science majors. Students spend one semester teaching science in an elementary school. Over the past five years, more than 100 undergraduates have taught in 17 elementary schools. One senior biochemistry major said that before enrolling in the course, he was considering becoming a teacher and wanted to know what it was like. Now he says he definitely wants to teach.

- **Get out of my class.** Today's agricultural classes engage students in thinking creatively while gaining hands-on experience. **South Dakota State's** Biostress Center of Excellence has helped students enhance their leadership and team skills, making them more employable and considered leaders among their peers. More than 31 percent of participants have leadership roles at regional and national professional meetings. **Montana State** horticulture students planted a community garden, devised a marketing plan and sold shares to the community. Shareholders received a weekly supply of carrots, greens and flowers from the garden, while students used the profits to grow additional produce for the community food bank.

- **Interns go to Washington.** Each semester, **Texas A&M** students serve as interns for Texas Congressional and committee offices in Washington, D.C. In some offices, these interns may be the most experienced in agricultural and natural resource issues. To date, 214 students have participated in the program and now hold key roles in state and federal government as well as in other professions. **California** has seen similar results with its internship program.

- **Wide world of agriculture.** Exposing students to other cultures helps better prepare them for working in a global society. **Oklahoma State** landscape architecture students collaborate with students from the Netherlands and Peru on designing landscapes, including landscapes for three public schools in Oklahoma and a pavilion and visitor's center in Peru. **Virginia Tech** students study agriculture in South Africa and horticulture gardens in England. **Texas A&M** students travel to Vietnam to learn about tropical agriculture.

- **Beyond blue jeans.** Unbiased biotechnology education isn't just for college students and adults. **South Dakota State's** Genes by Design program teaches South Dakota, Iowa, Nebraska and Colorado high school students to understand the full range of issues dealing with food biotechnology, including the properties of DNA, which they extract from fruit. **Nebraska** faculty teamed with colleagues at six other universities to create a comprehensive crop biotechnology Web site, which includes more than 30 lessons covering crop genetics, genetic engineering, biochemistry and weed science. Currently more than 12,000 extension educators and high school and college teachers have registered with the site. About 1,000 school children per year learn about biotechnology through **Missouri** 4-H's Field of Genes curriculum.

Cooperative State Research, Education, and Extension Service
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